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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/008,525	06/29/1998	YOUNG-WOO PARK	1834-1	6330

7590 04/23/2003

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EXAMINER

PHAM, HOAI V

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/008,525

Applicant(s)

PARK ET AL.

Examiner

Hoai V Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 4-15 and 19-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 16-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10-11, 18.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restriction*

1. Applicant's election with traverse of figures 4-7 in Paper No. 19 is acknowledged. The traversal is on the ground(s) that "If the search and examination of an entire application can be made without serious burden, the Examiner must examine on the merits, even though it includes claims too distinct or independent invention." This is not found persuasive because

a) The five species appear to be independent as claimed and there is no evidence of record to show otherwise. For example, species 2 of figure 8 is different from species 1 of figures 4-7 such as the oxidation preventing layer of species 2 is formed to be thicker on the sidewalls and on the top of the bit lines than on the first insulating layer while the oxidation preventing layer of species 1 is formed conformal on the entire surface of the bit lines and the first insulating layer.

b) The inventions are in different statutory classes which have different case law basis for examination.

c) Non-restriction would mean that if one of the inventions were held to be unpatentable then the other would also be inherently held to be unpatentable.

Therefore, restriction is proper since there are apparently five different inventive concepts in making the device and in the device itself.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 4-15, and 19-35 are drawn from consideration because these claims do not read on the species of figs. 4-7.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (fig. 1, pages 1-2) in view of Park [U.S. Pat. 6,268,244].

Applicant Admitted Prior Art discloses a method for manufacturing a semiconductor memory device comprising the steps of:

forming a first insulating layer (16) on a semiconductor substrate (100);  
forming a plurality of bit lines (18,20) on the first insulating layer;  
forming a second insulating layer (22) on the plurality of bit lines;

forming a contact hole exposing a portion of the semiconductor substrate by patterning the second insulating layer, and the first insulating layer;

forming a storage electrode (30) over the second insulating layer and connected to the portion of the semiconductor substrate through the contact hole; and

sequentially forming a dielectric layer (32) and a plate electrode (34) on the storage electrode.

Applicant Admitted Prior Art fails to disclose forming an oxidation preventing layer over substantially the entire surface of the bit lines and the first insulating layer. However, Park et al. discloses forming an oxidation preventing layer (40) over substantially the entire surface of the bit lines (36a, 37a, 38a) and the first insulating layer (34) to electrically insulate the conductive bit-line (fig. 2D, col. 5, lines 59-67 and col. 6, lines 1-3). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to form the oxidation preventing layer over the entire surface of the bit lines as taught by Park et al. into the process of Applicant Admitted Prior Art in order to electrically insulate the conductive bit-line from other conductive structures.

With respect to claim 2, Park et al. discloses that the oxidation preventing layer comprises a nitride layer (col. 5, lines 59-61).

With respect to claim 3, Park et al. discloses that the nitride layer is formed to a thickness equal to or less than about 1,000 angstroms (col. 5, lines 59-61).

With respect to claim 16, Applicant Admitted Prior Art discloses that the contact hole has a sidewalk (28) and wherein the step of forming a storage electrode is preceded by a step of forming a spacer on the sidewall of the contact hole.

With respect to claim 17, Applicant Admitted Prior Art discloses that the first and second insulating layers comprise a borophosphosilicate glass (BPSG) or an undoped silicate glass (USG) (pages 1-2).

With respect to claim 18, Applicant Admitted Prior Art discloses that a nitride layer (24) and an oxide layer (26) are sequentially formed on the second insulating layer prior to the step of forming the contact hole.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai V Pham whose telephone number is 703-308-6173. The examiner can normally be reached on 6:30A.M. - 6:00P.M..

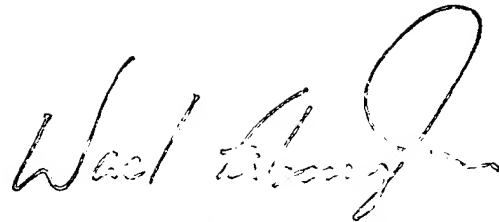
7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

8. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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HP  
Hoai Pham  
April 17, 2003

A handwritten signature in black ink, appearing to read "Wael Abouge". The signature is fluid and cursive, with a large loop at the end.

SUPERVISORY PRIMARY EXAMINER  
TECHNOLOGY CENTER 2600